A Data Base Survey for Supporting

A SYNOPTIC CHARACTERIZATION OF THE U.S. AND SOVIET MILITARY R & D PROCESS

SRI International

Technology Applications Department

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PREFACE

This briefing is the introduction of an effort currently being undertaken by SRI in support of ODDR&E/Net Technical Assessment to develop a synoptic characterization of the U.S. and Soviet Military R&D Process. Since this effort depends heavily upon the participation and support of the Intelligence and Assessment Communities we have prepared this discussion of the nature of the effort.

This briefing is to describe the long and short term goals of our effort, the concepts that form the basis for the approach, the payoff that ultimately will be reaped by the Intelligence and Assessment Communities, and the manner in which members of the two communities can contribute to the effort.

GOALS

- NET ASSESSMENTS
  - PROGRAMMATIC R&D RESOURCE COMMITMENTS
  - DEFENSE PROGRAM OVERVIEWS
  - SPECIFIC TECHNOLOGICAL APPROACHES
- PREDICTIONS OF SOVIET WEAPON SYSTEMS
  - LIKELY APPEARANCE DATE
  - POTENTIAL PRODUCTION RATE
  - PROBABLE TECHNICAL CHARACTERISTICS
- IMPROVEMENTS IN INTELLIGENCE COLLECTION AND ANALYSIS
  - PIN POINTING OF "HIDDEN" PROGRAM ACTIVITY
  - IDENTIFICATION OF GAPS AND OPPORTUNITIES

This chart portrays the long-term goals of an Assessment and Intelligence Communities program of which this effort represents one of several essential first steps. The first set of goals is in response to the needs of the Assessment Community. These include time-phased comparisons of U.S. and Soviet R&D resource commitments, broken down by program area, and a comparison of U.S. and Soviet defense programs, including overviews of major program thrusts and detailed technical comparisons.

The remainder of the goals relate to the needs of the Intelligence Community. To satisfy the requirements for information of decision makers on the national and military service levels, the Intelligence Community cannot merely provide estimates of current Soviet capability; instead, short- and long-term projections of threats are imperative. The goals also include improving the productivity of the intelligence collection and analysis processes by providing a means for a better focusing of resources. While this initial contract effort will not result in the immediate realization of these goals, it will determine the degree to which they are obtainable and the steps that must be taken to reach them.

APPROACH

DEVELOP AND IMPLEMENT (WITHIN THE GOVERNMENT) A SYSTEM FOR ORGANIZING AND DISPLAYING U.S. AND INTELLIGENCE DATA CONCERNING RDT&E SO THAT COHERENT PATTERNS EMERGE AND RESOURCE COMMITMENT COMPARISONS AND NET ASSESSMENTS CAN BE MADE.

EMPLOY THE STRUCTURAL ELEMENTS OF THE SRI "CUBE" CONCEPT AS A BASIS FOR ORGANIZING AND INTERPRETING THE DATA.

The mechanism for achieving the goals outlined on the previous chart lies in the development and implementation of a system that will help analysts to recognize and interpret coherent patterns of intelligence data. The wide need for this product, coupled with data sensitivity issues, makes it essential that the system be implemented and exercised within the government.

Extreme care must be exercised in the initial design and development of the system so that the products meet the needs of the user while the input requirements and processing techniques remain relatively simple and straightforward. SRI, as part of its continuing IR&D effort to improve intelligence methodology, has developed a concept called the Cube that is readily amenable to this task.

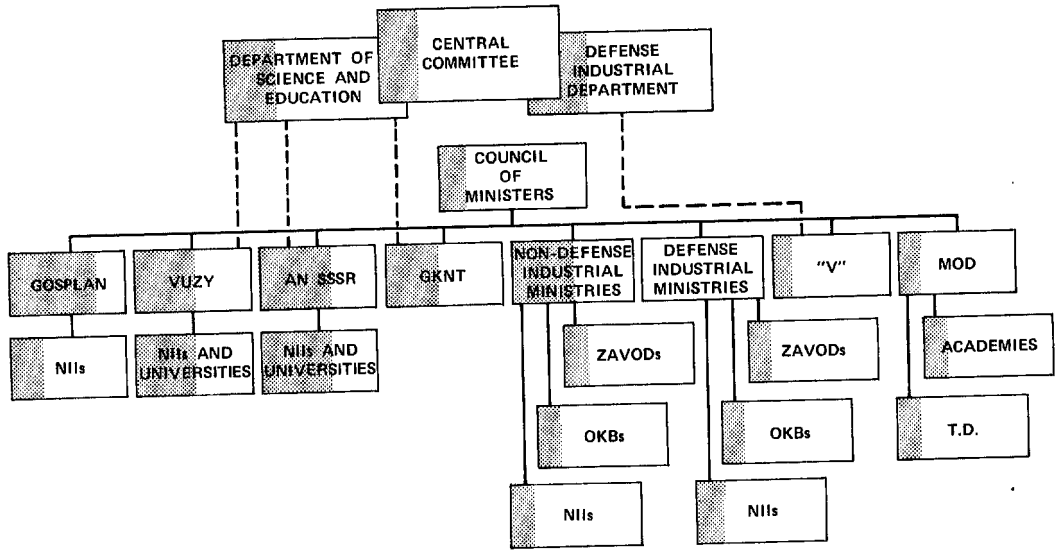
INITIAL EFFORT
Develop Cube Long Lead Items

- ESTABLISH ASSESSMENT AND INTELLIGENCE COMMUNITY NEEDS
- SURVEY INTELLIGENCE AND U.S. DATA BASE
- IDENTIFY FACTORS POTENTIALLY AFFECTING IMPLEMENTATION

The long-lead items shown above form the basis for three tasks being undertaken as a part of this contract. The first task is to establish in more detail the needs of the Intelligence and Assessment Communities. The goals of the program provide a general "shopping list" of potential Cube-related products; however, priorities must be assigned and specific content and formal needs must be established for each office that will use the product.

The success of the implementation of the Cube concept depends upon the degree to which the existing data bases support the requirements for informational input. The second task, a survey of these data bases, constitutes the bulk of this contract effort. Finally, factors that have a bearing on the implementation of the concept (e.g., manpower requirements, ADP support) must be recognized, and alternative management and operational concepts must be considered. Before discussing these tasks however, a common understanding of the Cube concept is essential.

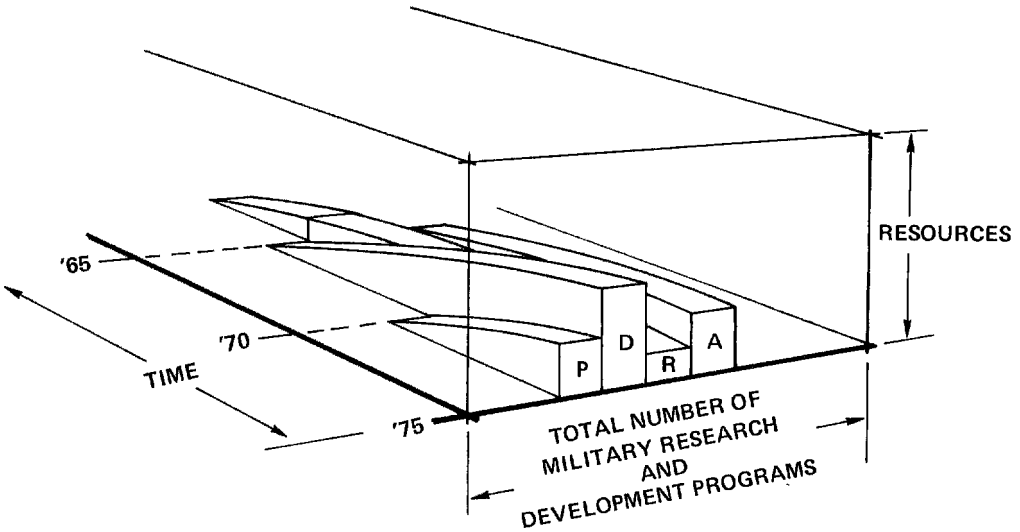
BASIS FOR THE APPROACH (Soviet R&D Participants)



An organization chart of Soviet R&D participants is useful for explaining the approach. The chart has been greatly over-simplified for the purposes of this briefing, but one can see that the R&D system has numerous participants, ranging from the Academy of Sciences to the Ministry of Defense, with responsibilities varying from fundamental research to the design, production and deployment of advanced weapon systems.

Because the responsibilities of each of these participants must be examined in some detail, the shading was added to each box to represent an estimation of the degree to which the data requirements of the Cube concept can be met. This information cannot be derived from one intelligence source and cannot be found in one place. Instead, many individual fragments must be organized into a coherent pattern.

ORGANIZATION OF DATA IS THE KEY



THE CUBE CONCEPT PROVIDES THE FRAMEWORK FOR ORGANIZING THE MANY DATA FRAGMENTS

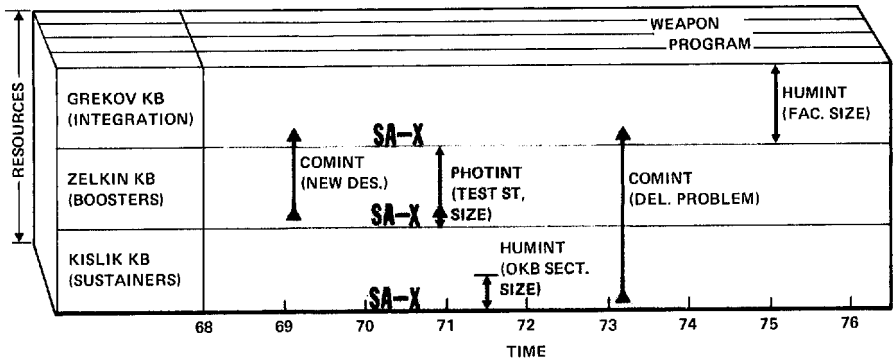
The sketch portrays the desired means for organizing the diverse sources of intelligence data, by using a three dimensional model (The Cube) with the axes representing time, weapon R&D program and resource commitment. Also shown are the goals or objectives of the Cube concept; that is, to isolate and portray the time-phased history of research (R), development (D), production (P), and administration and overhead (A) associated with each Soviet weapon program. The degree to which these goals can be realized depends upon the success that can be achieved in organizing and portraying the intelligence data available on each phase of the development process. Because of the difference in the nature of each type of activity and in the intelligence sources that reflect that activity, the activities can best be treated separately.

ORGANIZATION OF DATA ON DEVELOPMENT AND PRODUCTION

- DATA BASE ASSESSMENT:
  - MANY BITS AND PIECES OF HUMINT AND COMINT, SOME PHOTINT
- ASSUMPTIONS:
  - 100 PERCENT EMPLOYMENT CONCEPT
  - CENTRALIZED PLANNING AND RESOURCE ALLOCATION
  - SPECIALIZATION OF FUNCTIONS
  - DEDICATION OF FACILITIES AND PEOPLE TO MILITARY NEEDS
  - LONG TERM, STEADY COMMITMENTS
  - STABLE RELATIONSHIPS BETWEEN ENTITIES

The intelligence data available on Soviet development and production activity consists of a number of pieces of information, none of which, of itself, provides the descriptions of the time-phased activities and commitments needed. It is possible, however to develop a model to serve as a framework for these bits and pieces that will allow the patterns of activity to emerge. As is the case with any model, the validity is, to a high degree, dependent upon the set of assumptions that forms the basis for the model. The list shown on this chart is descriptors of various aspects of the Soviet R&D system that formed the basis for our model. All of them fall back on one general theme: that the Soviet system methodically (albeit often times slowly and inefficiently) continues to develop products in response to national priorities with changes in roles and functions of individuals and organizations taking place fairly slowly. While it is not imperative that these assumptions are always 100% valid, it is essential that they do tend to apply most of the time.

ORGANIZATION CONCEPT:
Development and Production Data



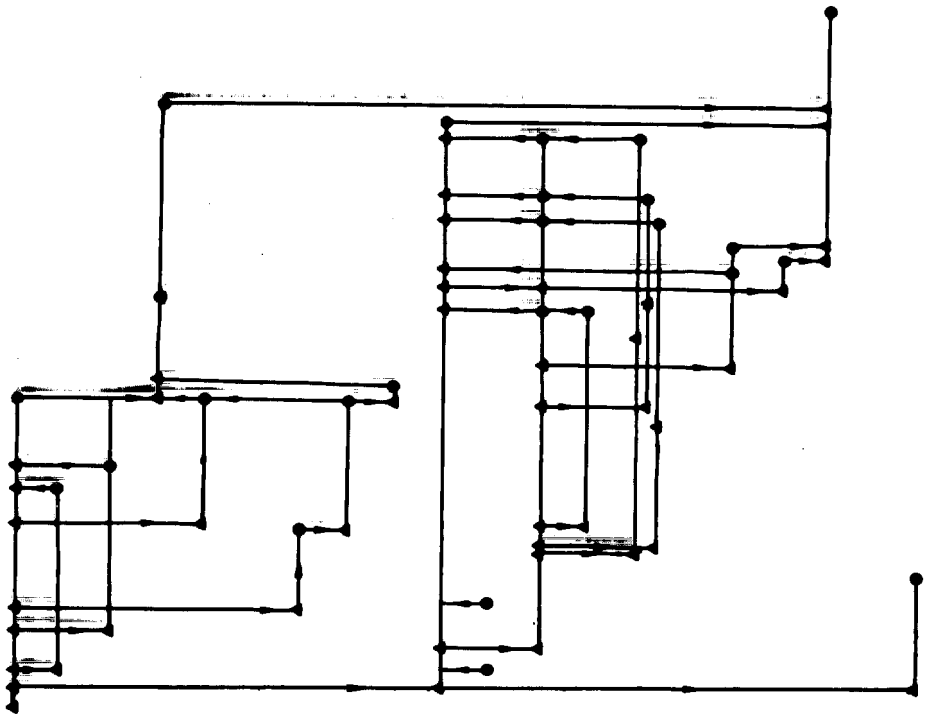
The Cube development and production model takes advantage of the Soviet 100% employment concept, (i.e., the USSR doesn't duplicate the large-scale hiring and firing practices of the U.S. aerospace industry). Also, the Cube attempts to account for all of the activity that takes place at the various Soviet design and production facilities that work on military systems. For the purposes of working with the data, it is most convenient to lay out the three dimensional model as shown on the chart. The full resource capacity of each facility then is represented by the height of the vertical axis for that facility.

The types of information that tend to be available on facility activities also are shown on the chart. Even with these very sparse pieces of data, however, it can be seen by the overlay (i.e., shaded area) that it is possible to estimate the approximate time-phased resource commitment of a particular facility to a given weapon program.

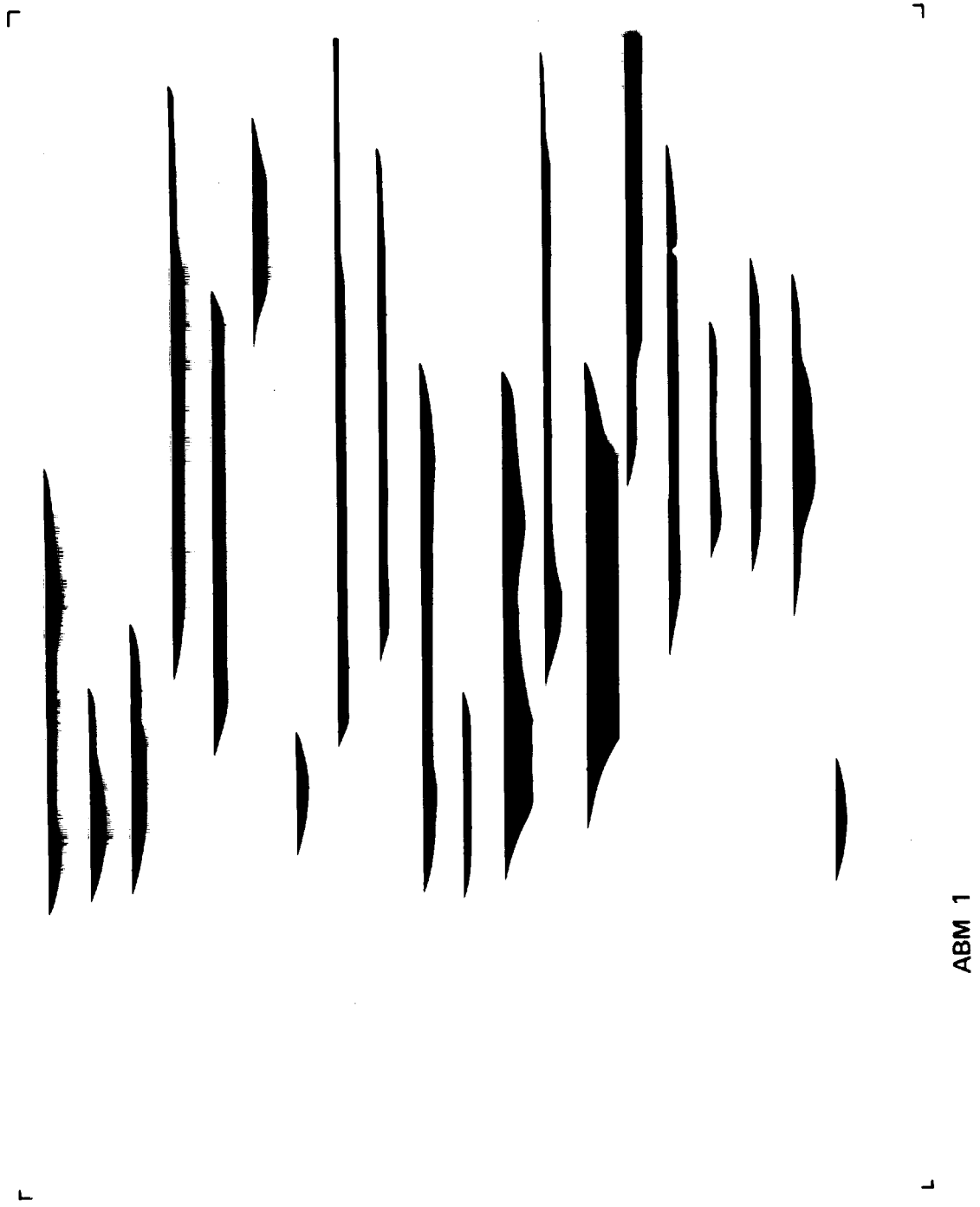
COMPILATION OF DATA ON SEVERAL FACILITIES AND SEVERAL SYSTEMS

The Charts and overlays on the next several pages demonstrate how the three dimensional concept is used to account for the activity of a number of facilities and for several weapons systems. The first set of charts portrays on the underlay a hypothetical group of facilities that might be involved in a SAM and/or ABM development program, the top facilities representing missile development activity and the lower ones radar development. The first overlay (ABM 1) shows the time-phased resource commitments of these facilities to one hypothetical ABM system. The second overlay (INTERACTIONS) is a tool used by the intelligence analyst to help organize and interpret the data. It portrays in a Gantt type of display the manner in which the various facilities relate to each other. The approximate points in time at which the system integrator requested components from suppliers and then the point at which the components were delivered are shown.

The second set of charts and overlays portrays the mechanism for accounting for more than one weapon system. Again, the first overlay (ABM 1) represents the facility commitment to one system. The second overlay (OTHER ABM) represents other ABM work undertaken at these facilities, and the third overlay (SELECTED SAMS) accounts for hypothetical SAM development activity. Theoretically, plate after plate representing the various types of weapon systems could be overlayed until all of the facility resources are accounted for. Practically, even in the best case, a number of holes still exist. Despite the holes, however, organization of the data in this fashion allows a number of observations to be made. Typical specialties and development times of various facilities become apparent. In the case of the missile integrator Grekov, for example, a product development time of approximately eight years is apparent, and the gaps in our data in the 1970s indicate that a new missile could be emerging. In addition, time-phased resource commitments by weapon system and in some cases production rates and production capacity are observable. The relationships between the participants also provide the analyst with clues as to whether another variant of an existing product line will be emerging or if, instead, a new design concept might be anticipated.

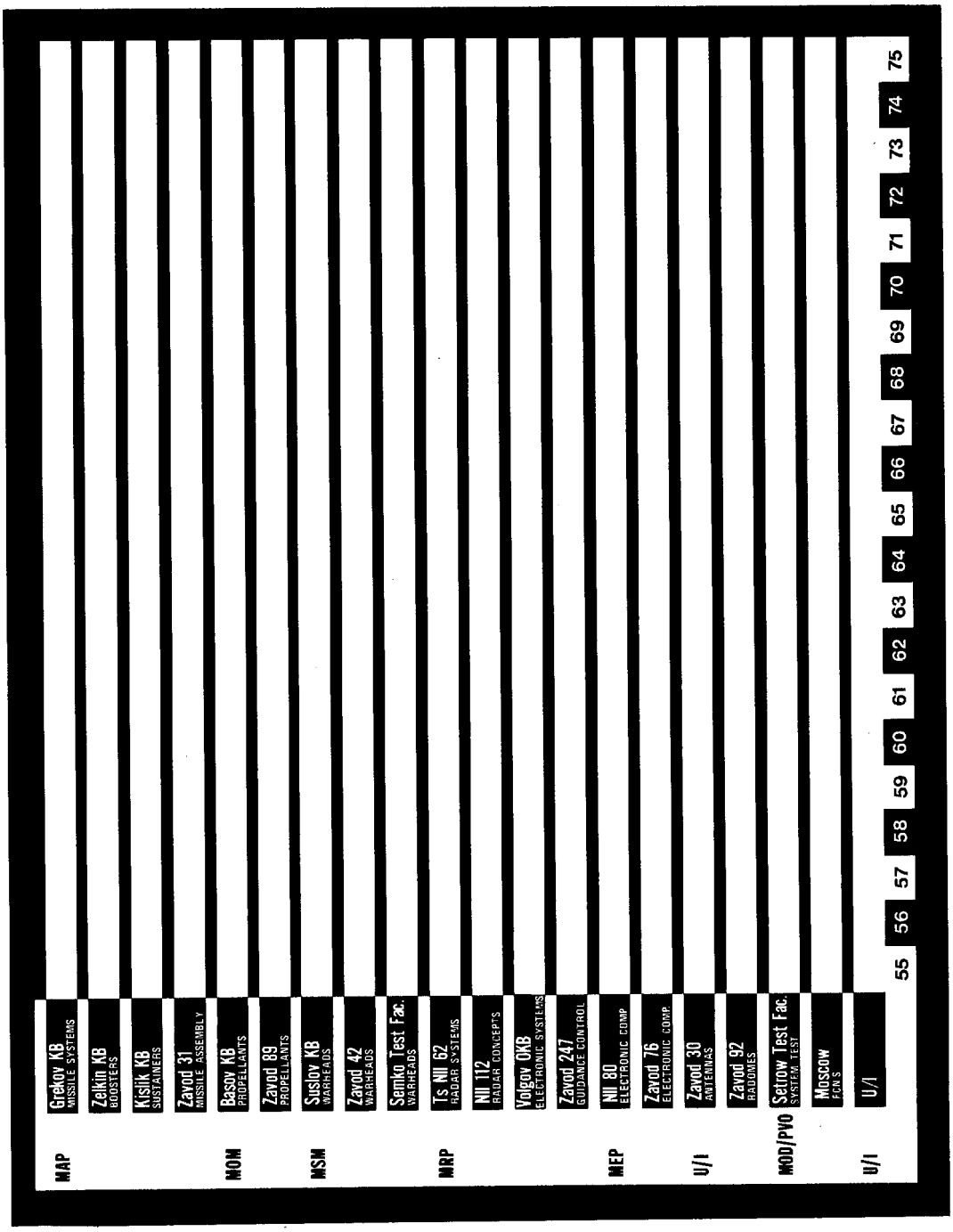


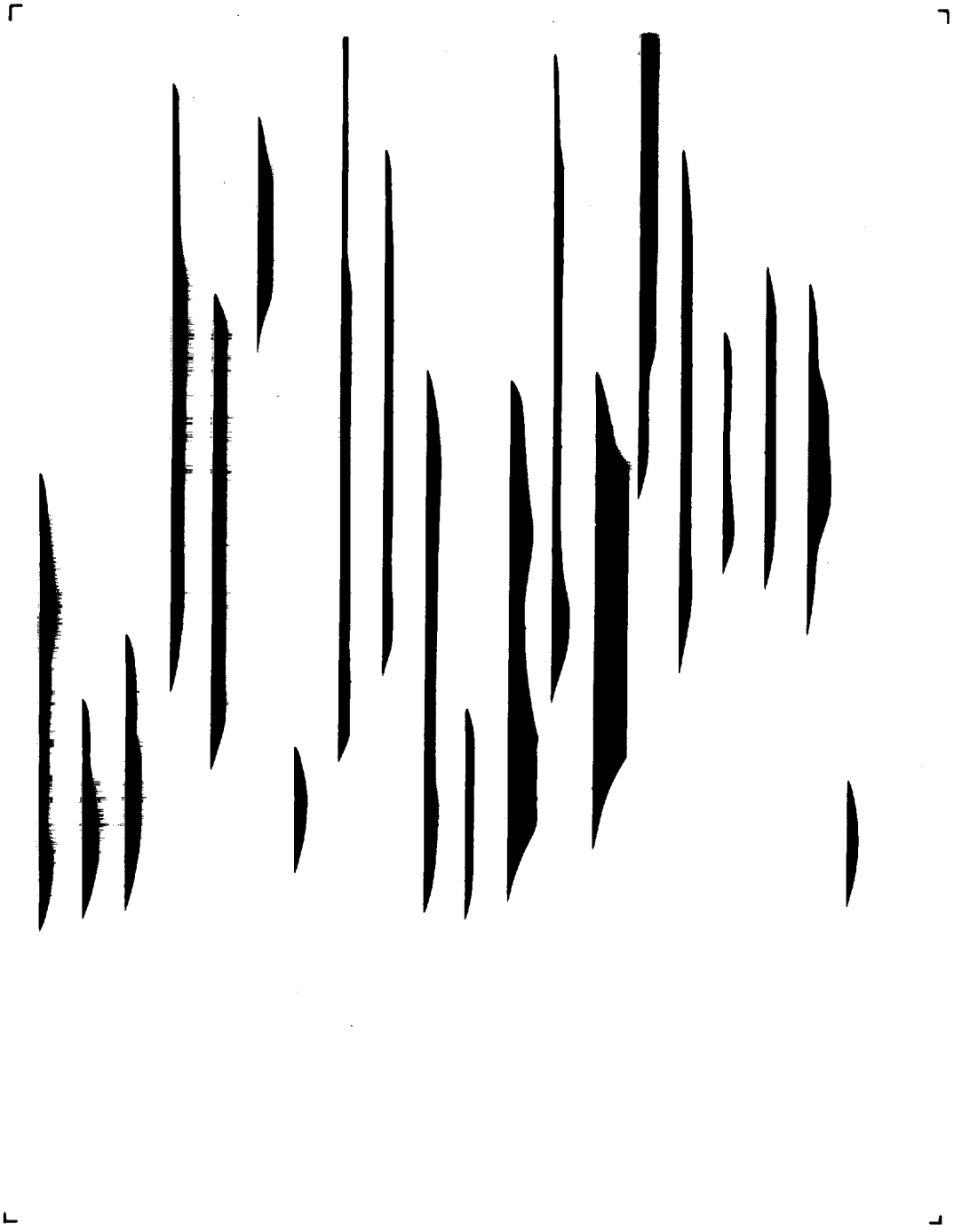
INTERACTIONS



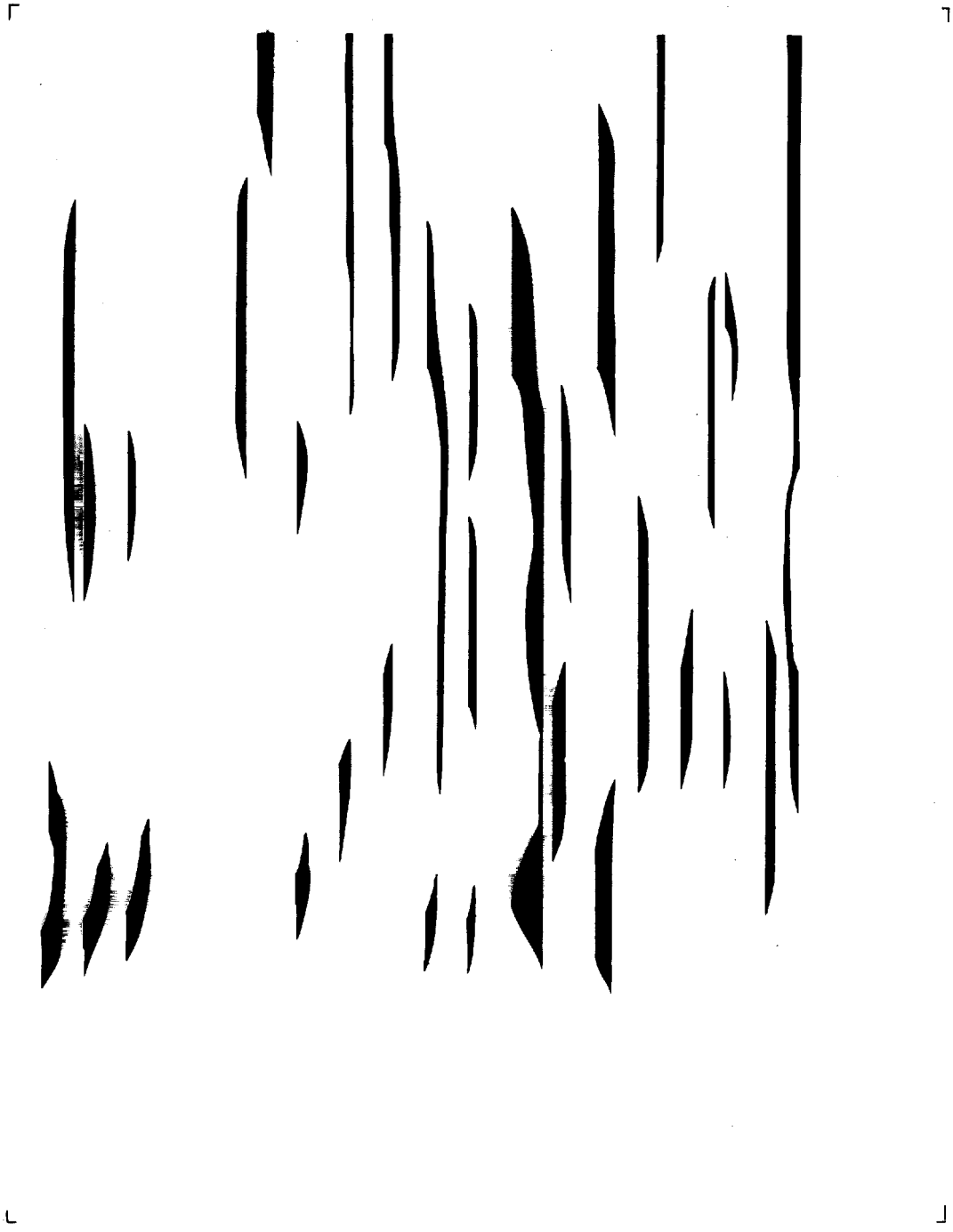
ABM 1

SINGLE WEAPON DEVELOPMENT HISTORY





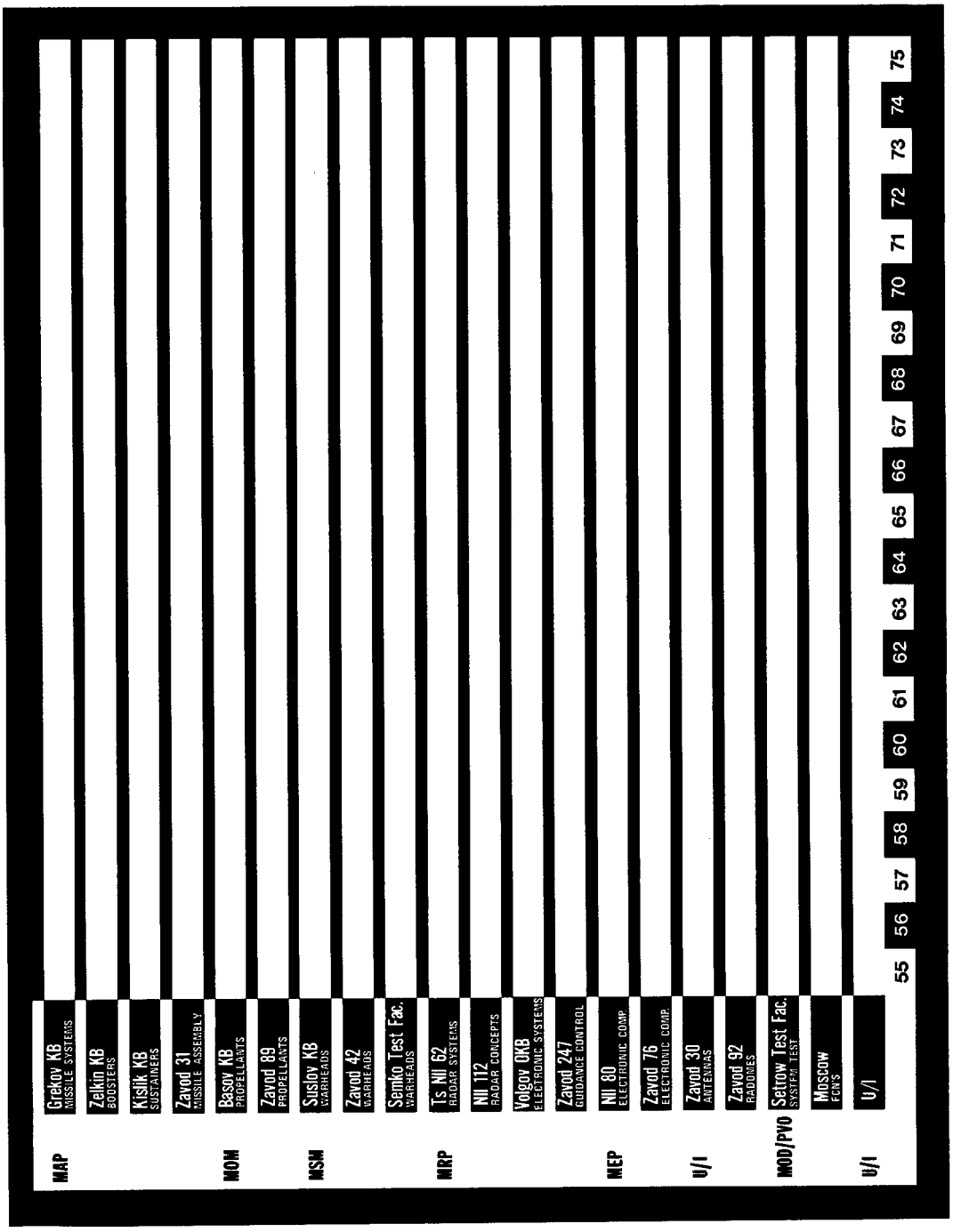
ABM 1



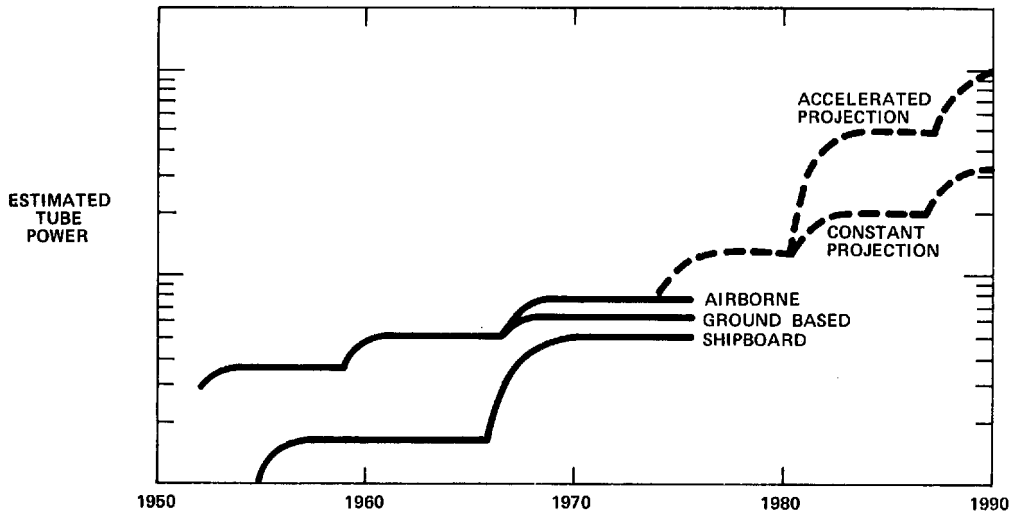
OTHER ABM

SELECTED SAMs

SEVERAL OVERLAYED SYSTEMS



PREDICTIONS OF TECHNICAL CHARACTERISTICS



Users of intelligence information need to know not only when a new product will be appearing, but also the technical characteristics of this product. Estimates of these characteristics often can be made by establishing the first- and second-tier suppliers of components, and then examining the technological growth curves of the products associated with these suppliers. This hypothetical chart shows the output power as a function of time of a family of electronic equipment. The consistent 6-7 year cycle and the steady rate of growth for each product evolution make it possible to estimate future product appearance dates as well as the approximate power.

ORGANIZATION OF DATA ON BASIC AND APPLIED RESEARCH

- DATA BASE ASSESSMENT:
  - CONSIDERABLE WRITTEN MATERIAL
    - OPEN AND CLASSIFIED
    - TECHNICAL AND ADMINISTRATIVE
  - FRAGMENTARY HUMINT AND COMINT
- ASSUMPTIONS:
  - CENTRALIZED R&D PLANNING
  - STABLE ORGANIZATIONAL INTERESTS
  - LONG TERM, STEADY COMMITMENTS
  - HIERARCHICAL SPECIALIZATION OF FUNCTIONS
  - ESTABLISHED TIES TO INDUSTRY

The nature of Soviet research and the intelligence sources reflecting that research are considerably different than design and production activity and its associated intelligence sources. In the case of research activity, there is an overabundance of written material available; classified data, however, is sparse.

In this case, too, some assumptions had to be made concerning the Soviet research system. Although not quite as disciplined as development activity, research programs tend to be approached by the Soviets in a similar, methodical manner, with a long-term, steady commitment and stable relationships among the participants. In addition, relationships among particular academic and industrial facilities (e.g., teaching, consultation, or contract research) appear fairly well established and remain stable.

ORGANIZATION CONCEPT: Research Data

- DETERMINE PROBLEM OR PROGRAM-RELATED RESEARCH WITH POSSIBLE MILITARY APPLICATION
  - 250 MISSION-ORIENTED PROGRAMS OF NATIONAL IMPORTANCE
  - GKNT/AN SSSR PROBLEM COUNCILS/SYMPOSIA
  - LONG-TERM CONTINUING EFFORTS
- ADD CANDIDATES FROM DESCRIPTIONS OF RESEARCH ACTIVITIES
- IDENTIFY PROGRAMS WITH MILITARY CONNECTIONS
- DEVELOP PROGRAM/FACILITY MATRIX
- USE HUMINT AND LITINT TO ESTABLISH FACILITY SIZE AND ORGANIZATION
- ESTIMATE PROGRAM/FACILITY TIME PHASED COMMITMENT
- INTEGRATE INDIVIDUAL R&D PROGRAM ACTIVITY TO DEDUCE WEAPON PROGRAM STATUS

The key to the successful organization of research data lies with developing techniques for sifting through the vast amounts of technical and nontechnical literature to identify major research programs with potential military applications. While not guaranteeing 100% success, the steps shown on the chart do provide a means for achieving this objective. The first two steps are directed towards developing a list of candidate research programs and participating organizations based on clues of major program-related activity (although that activity may not necessarily be military). A few of these programs can be linked directly to a military program using classified data sources. However, for the remainder, the last four steps are necessary to infer the nature, size, and status of each program. These last steps will be discussed in some detail in the following charts.

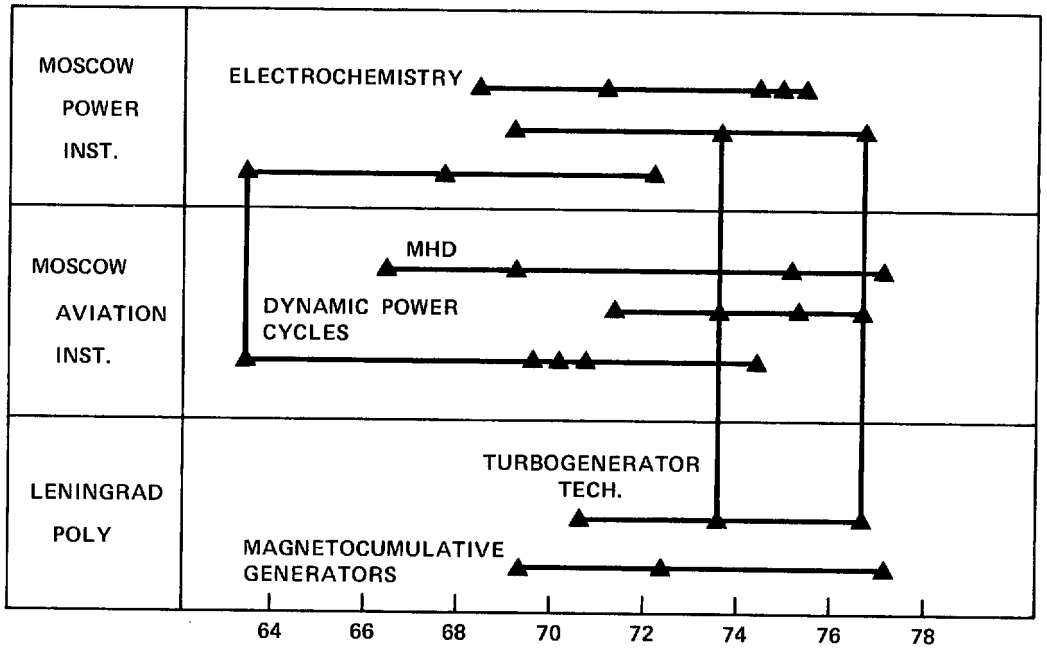
PROGRAM/FACILITY MATRIX
(POWER TECHNOLOGY)

	MVA POWER INST.	MVA AVIAT. INST.	LENIN. POLY	PHYS-ENERGETICS INST.	INST. OF HIGH TEMP. PHYSICS	MVA POWER ENGINEERING	INST. OF ATOMIC ENERGY	P-T INST. OF LOW TEMP	VNII OF CURRENT SOURCES	KAZAKH STATE	LENIN. P-T INST.	INST. OF METALLURGY	INST. OF HYDRODYNAMICS
DYNAMIC ENERGY CONVERSION DYNAMIC POWER CYCLES	**	*											
TURBOGENERATOR TECH.	**	**	*										
HEAT TRANSFER AND CORROSION		**		*	*	*	*						
CRYOGENIC TECHNOLOGY						**		*					
DIRECT ENERGY CONVERSION ELECTROCHEMISTRY	*								**	*			
PHOTOVOLTAICS									*		*		
THERMOELECTRICS						*			*			*	
THERMIONICS							*		*		*		
MHD		*			**	*	**						
MAGNETOCUMULATIVE GENERATORS			*										*

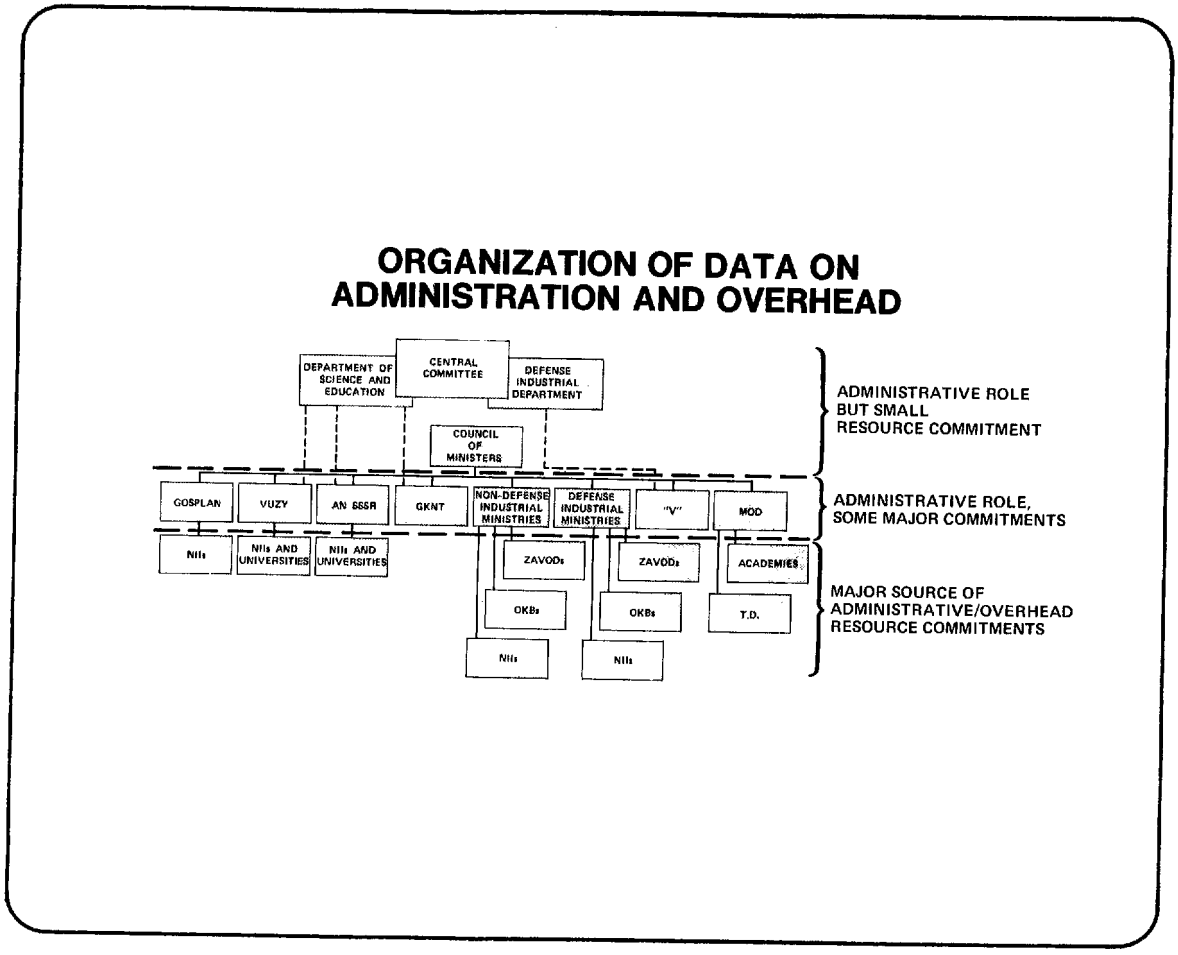
As mentioned in the assumptions concerning research, the Soviets appear to attempt to minimize unwarranted duplication of effort, especially in fields in which their manpower is limited. By analyzing data from a number of sources it is possible to construct matrices such as these that show "who is doing what" in research. In this chart, taken from data concerning the development of power technology, some of the major and minor players can be identified quickly. (This chart is only a small subset of the total matrix.)

The matrix represents not only the first step in identifying major correlations between programs and organizations, but also identifies those organizations in which the most relevant research is likely to take place. It is possible then, through LITINT and HUMINT, to establish the approximate total size of each facility and, to some degree, the breakdown by scientific discipline.

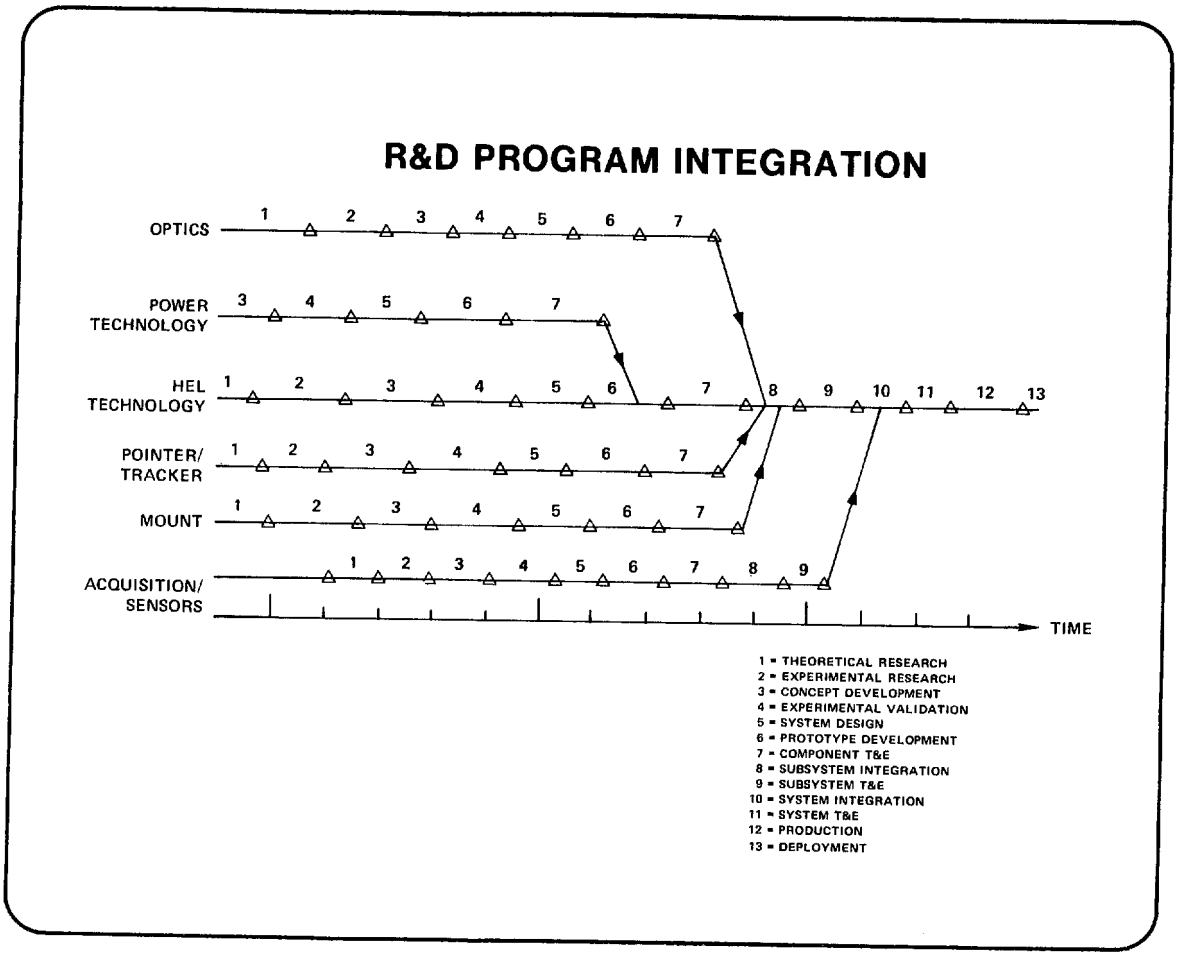
PROGRAM/FACILITY TIMEPHASING



To assess status, growth, and rates of progress, the facility activity is then plotted on a time-scale in much the same way as the development activity Cube. Estimates of the relative program emphasis (i.e., size) of each of the individual research activities can be obtained from analysis of such open material as publication patterns (both amount and type), status symbols (prizes, awards, academic titles) and symposia, if classified sources prove fruitless. Close observation of rates of progress, of time correlations of ostensibly independent activity, and of dates for starting, changing direction, and stopping often reveals the true character of the hidden, but no less real, structure of the program.



The "R&D participants" chart is convenient for discussing the Soviet resource commitments to the administration of R&D. Two observations are apparent from the chart: (1) Administration and overhead expenses (represented by the shaded portion of the chart) cannot be ignored in the analysis; they are a major portion of the total R&D commitment. (2) They can, however, be divided into three groups, as shown. For the purpose of estimating total R&D commitments, the top tier is so small that it can be ignored. Activities and responsibilities of the middle tier must be examined in greater detail to extract major resource commitments. The bulk of the administration and overhead commitments, however, is found in the lower tier, and represents the overhead activity at each of the participating R&D facilities.



To identify activity culminating in a major weapon program requires expanding the types of correlations for research activities shown on the previous chart to a macro level as shown here. The topic shown in this example is a ground-based, high-energy laser system. The hypothetical major components are as indicated. The time axis usually is an unknown at the start; one goal is to refine the initial estimates. Also indicated are the Soviet-defined steps in the development of weapons. The duration of the steps is reasonably close to the Soviet "plan." Once this chart is developed, it then becomes a routine task to estimate the program status and direction and total program resource commitment.

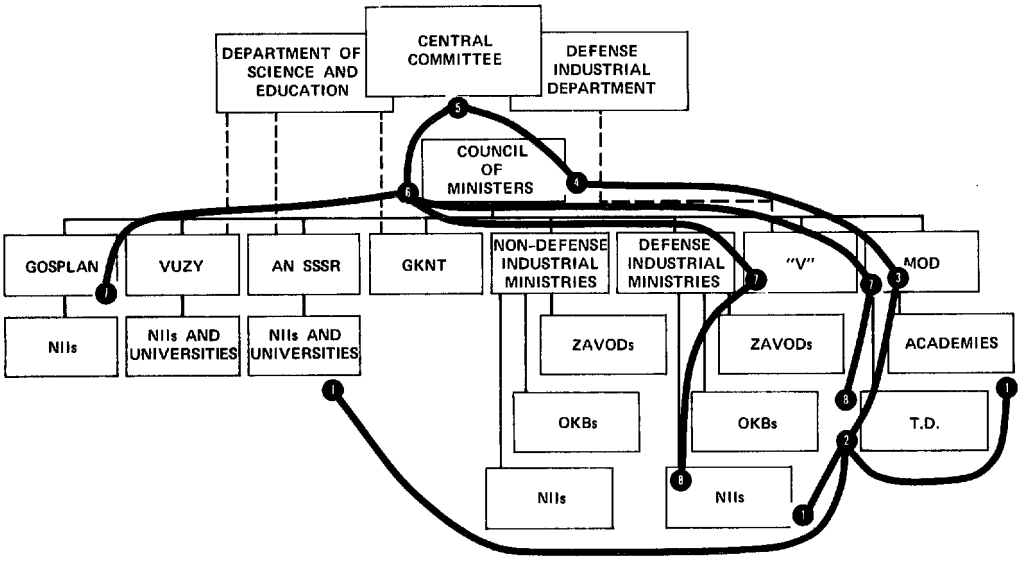
ESTIMATION OF ADMINISTRATION AND OVERHEAD COMMITMENTS

- PROGRAM RELATED (i.e., WITHIN R, D, AND P FACILITIES)
  - DETERMINE APPROXIMATE OVERHEAD TO DIRECT LABOR RATIOS
  - DISTRIBUTE, PROPORTIONAL TO PROGRAM SIZE AND DURATION
- NON-PROGRAM RELATED (CENTRALIZED (NATIONAL) R&D AND TEST RESOURCES AND OTHER NON-PROGRAM ASSOCIATED RESOURCES)
  - IDENTIFY MAJOR CONTRIBUTORS
  - DISTRIBUTE PROPORTIONAL TO PROGRAM UTILIZATION

Developing estimates of overhead and administrative expenses associated with the bottom-tier facilities is tedious but straightforward. These facilities have been linked to specific R&D programs, so the task becomes one of determining approximate overhead-to-labor ratios for each facility, and then distributing the commitment proportionally among the programs. Bits and pieces of HUMINT data can be used to arrive at the approximate ratio factors for various types of activity (i.e., research, design, full-scale development).

Nondedicated facilities are more difficult. In this case, the key lies in identifying and analyzing only those facilities that reflect major commitments (e.g., Test Ranges, VINITI) and distributing these costs roughly proportional to program utilization.

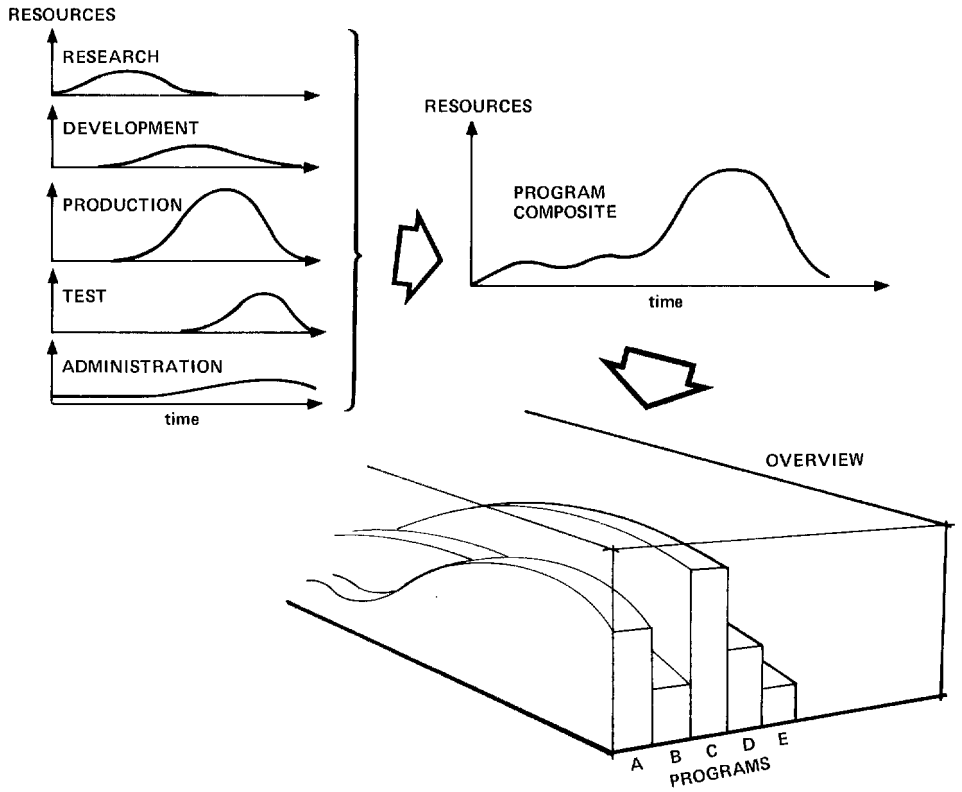
IDENTIFICATION OF MAJOR ADMINISTRATIVE PARTICIPANTS



A relatively easy, yet comprehensive means of identifying the major administrative and overhead R&D participants is to trace the development of a Soviet weapons system through the various R&D phases, noting the contributions of the various participants at each step. The overlay on the participants chart is an overly simplified illustration of one way for a program to proceed from applied research to development of a particular concept.

A potentially useful research advance is brought to the attention of the Ministry of Defense (Steps 1-3), approvals are obtained (4 and 5), resources are committed, the project is assigned to a key institute, and military-supervision assignments are made (6, 7 and 8). Each of these steps must be examined in detail to determine relative commitments of resources.

ORGANIZATION OF DATA FOR OVERVIEW PURPOSES



The individual time-phased resource commitments developed by type of activity (i.e., research, development, production, test and administration) can be summed to arrive at a composite estimate for each R&D program. A series of programs then can be displayed in the Cube format so that the status, the growth (or decline), and the resource commitments to major program activity can be observed.

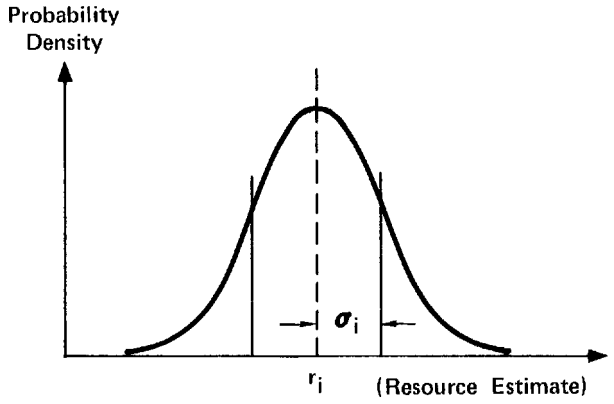
GOALS (A Reexamination)

- NET ASSESSMENTS
  - PROGRAMMATIC R&D RESOURCE COMMITMENTS
  - DEFENSE PROGRAM OVERVIEWS ✓
  - SPECIFIC TECHNOLOGICAL APPROACHES ✓
- PREDICTIONS OF SOVIET WEAPON SYSTEMS
  - LIKELY APPEARANCE DATE ✓
  - POTENTIAL PRODUCTION RATE ✓
  - PROBABLE TECHNICAL CHARACTERISTICS ✓
- IMPROVEMENTS IN INTELLIGENCE COLLECTION AND ANALYSIS
  - PIN POINTING OF "HIDDEN" PROGRAM ACTIVITY ✓
  - IDENTIFICATION OF GAPS AND OPPORTUNITIES ✓

At this point, it is convenient to reexamine the goals of the Cube concept shown in the first briefing chart. The checks represent those goals that can be met by organizing and displaying the intelligence data according to the methods demonstrated. Several areas are still weak, however. While referring often to the term "resources," the methodology neither directly defined the terms nor acknowledged the fact that resource estimates, whether of manpower, floorspace or dollars, all have considerable degrees of uncertainty.

In addition, the briefing so far has been directed towards the organization of intelligence data only, and has not addressed the problems of comparability that must be resolved to perform meaningful net assessment.

RECOGNIZING UNCERTAINTY IN RESOURCE ESTIMATES



- EXPRESS UNCERTAINTY WITH EACH ESTIMATE: $r_i \pm \sigma_i$
- SUM USING PROBABILITY LAWS TO EXPRESS UNCERTAINTY IN TOTALS: $R = \sum_{i=1}^{n} r_i, \ \sigma = \sqrt{\sum_{i=1}^{n} \sigma^2_i}$
- REFINE ESTIMATES ON INPUTS (PROGRAMS AND FACILITIES) TO EQUALIZE UNCERTAINTY CONTRIBUTIONS: Large r_i and σ_i

No matter what set of parameters are used as a measure of resource commitments, a means for expressing uncertainty on each individual estimate and for reflecting those uncertainties in the totals must be developed. In addition, because of budgetary limitations on analyst resources, the efforts of the analyst must be directed towards determining and refining estimates of organizational commitments, weapons systems, or research programs that have a significant impact on the total.

Both of these objectives can be satisfied by following the steps shown on the chart. A measure of uncertainty is expressed with each estimate (σ_i); using probability laws that concern the sum of a number of variables, an estimate of uncertainty in the total can be obtained (σ). Estimates that should be refined are those with the largest measures of uncertainty.

COMPARABILITY ISSUES

PROBLEM	APPROACH
■ INHERENT ASYMMETRIES ● DEGREE OF "SAMENESS" • PRODUCTS • PERFORMANCE • MISSION ● R&D STYLE	■ ESTABLISH ACCEPTABLE LEVELS OF ASYMMETRY • PRODUCTS • PERFORMANCE • MISSION • OTHER ■ PORTRAY RESULTS TO ENUNCIATE SIMILARITIES AND DIFFERENCES
■ DATA DEPENDENT ASYMMETRIES ● U.S. SOURCES • BUDGETARY DATA • PROFESSIONAL SOCIETIES AND TRADE JOURNALS ● SOVIET SOURCES • INCOMPLETE BUDGETARY DATA • FLOOR SPACE • BLUE CERs	■ ESTABLISH A COMMON REFERENCE DOMAIN AND APPROPRIATE MAPPING FUNCTIONS

Making net assessments nearly always is complicated by a number of asymmetries, some of them resulting from different approaches to R&D problems, and others caused by the differences in the types of data available on the two countries. The inherent asymmetrics cannot be eliminated; rather, they should be recognized as resulting in net assessments of programs with direct parallels (i.e., products), those with parallels that are less direct (e.g., in performance and mission), and individual assessments of Soviet and U.S. programs that have no counterparts.

Asymmetries in the data can and should be eliminated. The data sources for the U.S. and the Soviet Union do not provide really substantive measures of comparison. A third reference domain must be established and the relevant information from the other sources mapped into this domain.

CANDIDATE MEASURES OF RESOURCE COMMITMENT

- PERSONNEL EXPENDITURE RATES (MONETARY OR MAN YEARS) (LABOR, LABOR AND BURDEN)
  - PROFESSIONAL
  - SUPPORT
  - ADMINISTRATION AND OVERHEAD
- MATERIALS AND SERVICES
  - RAW MATERIALS AND PIECES AND PARTS
  - COMPUTER SERVICES
  - MACHINE SETUPS
  - TRAVEL/TRANSPORTATION
  - ONE TIME INSTRUMENTATION
  - EXPENDED ARTICLES
  - DRAWINGS AND SPECIFICATIONS
- CAPITAL EQUIPMENT
  - BUILDINGS AND SITES
  - CAPITALIZABLE INSTRUMENTATION AND TEST FACILITIES
  - MACHINE TOOLS AND APPARATUS
  - SPECIAL TRANSPORTATION AND HANDLING EQUIPMENT

A portion of this contract effort will be to recommend candidate measures of resource commitment based on the survey of the U.S. and intelligence data bases. This chart represents some possible commitments. As an example, manpower estimates are an excellent reflection of the magnitude of a program commitment. In this case, the mapping function for Soviet data involves using HUMINT data for "anchor" points and measures of uncertainty, and developing a series of personnel estimating relationships around these points by combining estimates of floor space, the type of activity, and its stage of development.

Measures of resource commitment other than manpower are also needed to account for a major portion of R&D expenses. The breakdown of Materials-and-Services and Capital Equipment shown is one way of accounting for these costs. This breakdown is based on U.S. analogs. Again, the problem of the Soviet data mapping function can be solved by developing estimating relationships using a limited number of HUMINT and PHOTINT data points as the base.

SPECIFIC TASKS

TASK 1: DETERMINE OUTPUT PRODUCT STRUCTURE BASED ON USER NEEDS

TASK 2: DEFINE THE NATURE, SIZE, AND ACCESSIBILITY OF THE DATA

TASK 3: IDENTIFY FACTORS POTENTIALLY AFFECTING IMPLEMENTATION

As mentioned previously, this contract effort is to develop several long lead items that are essential to the implementation of the outlined organizational concepts. As shown above, the tasks are to refine the needs of the Intelligence and Assessment Communities so that the outputs of the Cube can be defined; to assess the U.S. and Soviet data base (e.g., available documentation, automated and manual files); and to determine other items that influence implementation of the concept.

It is at this point that we are seeking assistance to the effort. Any information on the requirements of the user, data sources, or other items that could affect implementation would be greatly appreciated.

RELATED SRI ACTIVITIES

- STUDY OF INTEGRATING CONTRACTORS (CIA)
- ROLE OF STATE COMMITTEE ON SCIENCE AND TECHNOLOGY AND PROBLEM COUNCILS (FTD)
- HEL TEST REQUIREMENTS AND INSTRUMENTATION (FTD)
- DOCUMENTATION OF "THE RADAR INDUSTRY" (NISC AND MIA)
- ADMINISTRATION AND MANAGEMENT OF THE ABM PROGRAM (MIA)
- RESOURCES RELEVANT TO DIRECTED ENERGY WEAPON RESEARCH (DIA)
- "EVOLUTIONARY" AND "REVOLUTIONARY" R&D IN ASW (NISC)

This last chart is included to provide some background on other activities of the Technology Applications Department that relate to this study. All of the studies are current or recently completed SRI projects, except for the last, which still is a proposal.

The Technology Applications Department currently consists of 12 professionals and 6 support staff. Approximately half of these individuals are directly involved on the contracts shown, with the remainder working in the other areas of technical intelligence analysis. This staff size appears small in comparison to the scope of the contracts, however the Technology Applications Department serves primarily as the focal point for these efforts which rely on the expertise of a wide variety of technical specialists from throughout the Institute.

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